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C5.165 Documented plan for co-ordinated usability testing with testing partners

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Dissemination Level		
PU	Public	
PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	

Contents

This document sets out the intended schedule and method of the usability testing to be carried out on the Taxonomic Editor (v2.1.0.200912300955) as part of the wider EDIT software testing activities. It is open to discussion and comment. Please also see the following:

- Tester Profile Questionnaire
- Instructions for Usability Co-ordinators
- Test Case Scenario Recording Sheets for Testing Co-ordinators
- Instructions for Testers
- Post-Test Feedback document.

1.0 What is Usability Testing?

Usability testing is the systematic observation of testers under controlled conditions to determine how well a product meets the needs of its intended users. Features to be measured include intuitiveness, ease of use, speed, availability of help if needed and the quality of error messages.

Usability testing is a vital part of the testing process that will help identify design flaws or undesirable features of the Taxonomic Editor as well as its strengths. To complete the usability testing we need to:

- Identify any usability problems that the product has;
- Collect qualitative and quantitative data on the performance of the product;
- Determine testers' satisfaction with the product.

There are three elements to measuring usability (ISO 9241-11: Guidance on Usability): effectiveness, efficiency and satisfaction. Our proposed methods of measuring these elements of the Taxonomic Editor during the usability testing are explained in sections 2.0 and 3.0 below.

2.0 Proposed Approach to Usability Testing of the Taxonomic Editor

2.1 Tester Profile Questionnaires

Each Usability Tester will complete a Tester Profile Questionnaire. This will give us a measure of the computer experience of the Tester as well as their usual taxonomic revision work practices. This information will be compared to the testing feedback so we can detect whether the Taxonomic Editor equally caters for taxonomists of varying profiles.

2.2 Test Case Scenarios

The structured element of the Usability Testing will be based on Test Case Scenarios. As the Taxonomic Editor has been designed to form part of the taxonomic revision process, the Scenarios have been designed to represent, we believe, the most common tasks that are performed as part of a taxonomic revision.

Some Test Case Scenarios can be performed as a discrete task, however generally they are accumulative and therefore should be performed in the order given. Each task has been designed to take no more than 10 minutes however this will vary from Tester to Tester.

The test cases are described to the Testers very briefly and without specific instructions. This will allow the testers the freedom to follow their usual working processes as well as measure the intuitiveness of the Taxonomic Editor. Testers are free to choose a published taxonomic revision or other taxonomic information as their source of data that will be manually input into the Taxonomic Editor. The tasks will be performed by the Testers with as little direction from the Co-ordinators as possible in order to more accurately test the usability of the Taxonomic Editor.

The pathway in which the Testers are expected to proceed through each Test Case Scenario is described to the Testing Co-ordinators in the **Test Case Recording Sheets for Testing Co-ordinators**. The Co-ordinators will record each action of the Testers. If the Testers deviate from the pathway given, the Co-ordinators will question the Tester as to why they made the decision to follow an alternative pathway. The answers to the following questions should be recorded following each deviation:

1. What did the Tester do that was different to the expected path?
2. Why did the Tester follow their chosen route? I.e. what prompted them to decide that it was the right thing to do next and did they consider the anticipated next action before they rejected it?
3. Was it obvious to the Tester that they had deviated from the expected path? For example, was an error message displayed or did the user alter their actions without prompting?
4. Was the user able to correct their error successfully?

This will provide information on the usability of the Taxonomic Editor interface and to what extent it supports the Testers' existing work processes. If any common deviations become apparent this information can be used to improve the design of the Taxonomic Editor. The number of deviations will also provide a quantitative measure of the effectiveness and efficiency of the Taxonomic Editor.

Following each Test Case Scenario the Co-ordinator will ask the Tester for general comments about that specific Scenario. The suggested points to cover are:

- Did the Tester find the test case easy?
- Are they confident they completed the task as expected?
- Can they suggest any improvements?
- Would they be confident performing the Test Case again?

These open-ended questions will give the Tester the opportunity to describe their feelings (the "satisfaction" element) about performing individual Test Case Scenarios providing qualitative data on specific functions of the Taxonomic Editor.

2.3 Post-Test Feedback

Each Tester will be asked to complete a Post-Test Feedback document after they have completed all of the Test Case Scenarios. It should take no more than 30 minutes to complete. This is comprised of 3 sections:

Section A Satisfaction Questionnaire

This questionnaire will provide quantitative feedback on the Testers' feelings about their experience using the Taxonomic Editor. There are 50 statements, from which the Testers should choose from the options "Agree", "Undecided", "Disagree" and "Not Applicable". There is a balance of positive and negative statements. This is a common method of collecting user satisfaction data. The majority of the statements are taken from the Software Usability Measurement Inventory (SUMI) although some have been customised for better suitability to the Taxonomic Editor.

Section B Reaction Cards

This section is also designed to measure the "satisfaction" element of usability testing. A list of 50 words is shown to the Tester; 25 are positive and 25 are negative. The Tester must select the 5 words that they feel best describes their feelings about the Taxonomic Editor. The Co-ordinator will then ask the Tester to briefly explain their reasons for choosing each word. This section will provide both quantitative and qualitative data on the Testers' satisfaction with the Taxonomic Editor.

The list of words is a sub-set of 118 words developed by Microsoft (© 2002 Microsoft Corporation. All rights reserved) for use in usability testing.

Section C Working Practices Questionnaire

This section is designed to collect qualitative feedback regarding the usual working practices of the Testers and whether they feel the Taxonomic Editor has a place within those working practices.

2.4 Individual Ad-Hoc Testing

The number of Testers recommended for each institution is based on the allocated testing budget and the expected time taken for the Test Case Scenarios to be completed. However, we have also allowed a significant amount of time for ad-hoc, or "unstructured" testing to give the Co-ordinators and/or Testers the opportunity to explore the Taxonomic Editor individually. This will allow them to create additional test case scenarios to suit their own working practices and will test the usability of the Taxonomic Editor more thoroughly.

Whether the unstructured testing is carried out by the Co-ordinators and/or the Testers, and how many people are involved is a decision for each institution.

The feedback mechanism for this part of the testing has not yet been established and is open to discussion. Options include allowing each individual access to the TRAC ticket site for them to create tickets for each issue they encounter, or the feedback could be compiled, analysed and reported on by RGBE.

3.0 Measurements of Effectiveness, Efficiency and Satisfaction

Element	Definition (Frokjaer et al, 2000)	Indicators (Frokjaer et al, 2000)	Measurement included in the Usability Testing Plan
Effectiveness	The accuracy and completeness with which users can achieve certain goals.	Quality of solution and error rates.	Quantitative measurements: • Number of deviations from anticipated pathways. • Number of errors encountered. • Number of tasks successfully/unsuccessfully completed. • Post-Test Feedback. Qualitative measurements: • Answers to open questions following each Test Case Scenario. • Post-Test Feedback.
Efficiency	The relation between accuracy and completeness with which users can achieve certain goals and the resources expended.	Task completion and learning time.	Quantitative measurements: This element of usability is generally measured by recording the length of time the testers take to complete Test Case Scenarios, and comparing this to the expected time. However, we do not feel this appropriate for this study as it is not possible to predict an expected time taken to perform each task. We will, however, gain feedback from: • Number of tasks successfully/unsuccessfully completed. • Post-Test Feedback. Qualitative Measurements:

			• Answers to open questions following each Test Case Scenario. • Post-Test Feedback.
Satisfaction	The user's comfort with and positive attitudes towards the use of the system.	Attitude rating scales, questionnaires, reaction cards.	Quantitative measurements: • Post-Test Feedback. Qualitative Measurements: • Answers to open questions following each Test Case Scenario. • Post-Test Feedback.

4.0 The Role of Usability Testing Co-ordinators (Co-ordinators)

Each participating institution will have one Usability Testing Co-ordinator who will recruit the recommended number of Usability Testers depending on their allocated person months (PM). Possible Co-ordinators have been suggested as shown in the table below, however this will be confirmed at a later date.

Institution	Location	Contact
FUB-BGBM-W	Germany	Agnes Kirchhoff, Andreas Kohlbecker
UKBH	Denmark	Henrik Enghoff
UvA	Netherlands	Marc Brugman
RMCA	Belgium	Patricia Mergen
NBGB	Belgium	Jerome Degreef, Jean van Onacker
MIZPAN	Poland	Dominik Mikiewitz
HNHM	Hungary	Andras Gubyani
CUB	Slovakia	Eduard Stoukal
IBSAS	Slovakia	Karol Marhold
CBS	Netherlands	Gerrit Stegehuis
RBGK	UK	Mark Jackson
MNHN	France	Regine Vignes

For more information on the role of Usability Testing Co-ordinators please see **Instructions for Usability Testing Co-ordinators**.

5.0 The Role of Usability Testers (Testers)

Usability Testers will be recruited by the Co-ordinators from within their institution. The Testers should be taxonomists with experience of carrying out taxonomic revisions. In mixed-speciality institutions taxonomists with expertise in a range of taxonomic groups should be selected if possible. For more information on the role of Usability Testers please see **Instructions for Usability Testers**.

6.0 Suggested Number of Testers per Participating Institution

The suggested number of Testers per participating institution is given in the table below along with the testing budget remaining for individual, ad-hoc testing. The recommendations are flexible and Co-ordinators are free to add or deduct from the number of Testers if necessary.

	Number of PM (JPA4 & 5)	Number of PD (based on 20 working days per month)	Tester Co-ordinator training (PD)	Tester Co-ordinator set-up and results submission (PD)	PD per Tester	PD per Co-ordinator per Tester	**Suggested number of Testers**	Total PD Tester + Co-ordinator	**Remaining allocated testing time**
FUB-BGBM-W Germany	0.5	10	1	2	1	1	**2**	7	**3**
UKBH Denmark	0.5	10	1	2	1	1	**2**	7	**3**
UvA Netherlands	0.5	10	1	2	1	1	**2**	7	**3**
RMCA Belgium	0.5	10	1	2	1	1	**2**	7	**3**
NBGB Belgium	0.5	10	1	2	1	1	**2**	7	**3**
MIZPAN Poland	0.5	10	1	2	1	1	**2**	7	**3**
HNHM Hungary	0.5	10	1	2	1	1	**2**	7	**3**
CUB Slovakia	0.5	10	1	2	1	1	**2**	7	**3**
IBSAS Slovakia	0.5	10	1	2	1	1	**2**	7	**3**
CBS Netherlands	0.5	10	1	2	1	1	**2**	7	**3**
RBGK UK	0.5	10	1	2	1	1	**2**	7	**3**
MNHN France	0.5	10	1	2	1	1	**2**	7	**3**

7.0 Anticipated Work Flow

RBGE designs the Usability Testing Plan.

⇩

Discussion of the Usability Testing Plan, including the confirmation of Usability Testing Co-ordinators.

⇩

RBGE delivers training to the Co-ordinators following demonstrations of the Taxonomic Editor by the Berlin development team.

⇩

Co-ordinators at each participating institution recruits the recommended number of Usability Testers.

Co-ordinators install the Taxonomic Editor on the computer to be used during the testing, and set up separate datasources/databases for each Tester (see **Instructions for Usability Co-ordinators**).

Co-ordinators arrange a testing schedule.

Co-ordinators ensure they have the following:

- User Manual (x1)
- Instructions for Usability Testing Co-ordinators (x1)
- Instructions for Usability Testers (x1)
- Tester Profile Questionnaire (1 per Tester)
- Test Case Scenario Recording Sheets for Testing Co-ordinators (1 per Tester)
- Post-Test Feedback document (1 per Tester)

At the beginning of the first session with each Tester, the Co-ordinators ask the Testers to complete a Tester Profile Questionnaire.

Co-ordinators observe and record the actions of the Testers as they carry out the Test Case Scenarios.

When a tester has completed all the Test Case Scenarios, they complete a Post-Test Feedback document together with their Co-ordinator.

When the Co-ordinators complete all Test Case Scenarios with all of their Testers, they forward the results to RBGE.

Co-ordinators and/or Testers carry out independent, ad-hoc testing according to the number of person days their institution has remaining – Feedback procedure to be discussed.

RBGE analyses the results and reports on the usability of the Taxonomic Editor.

8.0 The Test Case Scenarios

The Test Case Scenarios chosen for the structured usability tested are shown below. These have been designed to represent what we feel are the most important and common activities associated with taxonomic revisions. However, if it is felt that important elements of the Taxonomic Editor or taxonomic revisions are not being adequately tested they can be reviewed. Each task is covered in the User Manual so help will be available if necessary.

Test Case 1. Creating a New Taxonomic Tree .
Test Case 2. Closing and reopening the Taxonomic Tree panel.
Test Case 3. Adding a Genus name with authority abbreviation using "Quick Add Child".
Test Case 4. Adding 5 Species names with authorship using "Quick Add Child".
Test Case 5. Adding a species name with authority abbreviation using "New Child".
Test Case 6. Creating and saving a heterotypic synonym for the Genus taxon.
Test Case 7. Adding and saving a homotypic synonym of a species taxon.
Test Case 8. Changing the homotypic synonym of the species name into an accepted name.
Test Case 9. Changing the accepted name created in Test Case 6 back to a synonym of the same species name.
Test Case 10. Checking and editing (if necessary) the parsed Rank of the Genus taxon.
Test Case 11. Checking and editing (if necessary) the parsed uninomial and specific epithets and authorship of Species taxa.
Test Case 12. Deleting a species taxon .
Test Case 13. Inputting the year and name of publication as a nomenclatural reference for a species taxon.
Test Case 14. Inputting a nomenclatural status of "valid" for a species taxon.
Test Case 15. For a species taxon, inputting distribution information (one country) and the status of the species within that country.

9.0 Schedule

Time has been allocated for feedback on the test plan and amendments as necessary. Following confirmation of the test plan the training of the Testing Co-ordinators will be arranged by RBGE. The training may require some travel to a central location by the Testing Co-ordinators. The schedule and location of will be arranged shortly but should commence in March 2010.

Each Co-ordinator will arrange the testing schedule at their own institution and are free to carry out the testing in as many separate sessions as is suitable for them and their Testers. However, we require that the usability testing be complete and the results returned to RBGE by **Friday 18th June 2010**.